INDUSTRIAL STANDARDIZATION

Formerly ASA BULLETIN

A MONTHLY REVIEW

ASA

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The American Standards Association is organized to provide systematic means of cooperation in establishing American Standards to the end that duplication of work and the promulgation of conflicting standards may be avoided; to serve as a clearing house for information on standardization work in the United States and foreign countries; to act as the authoritative American channel in international cooperation in standardization work

A Code for Form and Arrangement of Published Standards

by

E. M. Matthews[1]

Recommended page sizes, typography, paper and other details included in proposed code for printing of standards

The American Standards Association long has been interested in having available a code of practices for the guidance of those publishing American Engineering and Industrial Standards. A proposed code has been prepared which comprises a pamphlet report entitled "Form and Arrangement of Published Standards," and a subtitle "Recommended Practices for the Preparation and Publication of Engineering and Industrial Standards." The code was prepared by a special committee and is now being studied by the ASA Standards Council. It contains specific practices for single sheet and large and small sized pamphlet standards.

As stated in the introduction of the code, the recommended practices are intended to serve the following purposes:

> "Provide complete recommended form and arrangement, style, page size, type, etc., for such standards as the American Standards Association may publish.
> "Provide a guide for the use of bodies about to undertake the preparation and publication of standards of their own and which, therefore, have no established procedure.
> "Provide recommendations which, at least as to general form and arrangement, all bodies engaged in the preparation of standards in this country and particularly those cooperating in the American Standards Association work could adhere to in so far as it is practicable to do so, thus encouraging such uniformity in published standards as is consistent with variations in subject matter."

In some particulars, such as size of page, style of type face, etc., the recommended practices provide a certain range of choice. The relative merits of these alternative practices have been left for future study and determination. This is not regarded as an important disadvantage, for revisions will be necessary and desirable as experience is gathered in the preparation of printed standards.

In the publication of American Standards, a certain dignity of appearance and quality of printing were considered essential, and as far as it was practicable to do so, the practices relating directly to the printing art were selected to accord with the best commercial printing practices. This is true particularly of such features as style of type faces, margins, and the printing of tabular matter, which are described in considerable detail under their proper headings in the code.

General adoption of the practices recommended after adoption is quite important; even in specific cases where full accord cannot be obtained, the greatest practicable use of the code should be urged. In this way desirable changes in the practices can most quickly be effected and a reasonable uniformity in standards be obtained. The recommended practices are being followed by the American Standards Association for the form and arrangement in standards which ASA publishes.

General value of code

From the standpoint of enlarging the field of usefulness of such a code of form and arrangement, it would be of interest to learn whether publications other than National Standards developed under American Standards Association procedure might receive some benefit from the preparation of these practices. It would be desirable, therefore, to encourage other publishers of specifications, company standards, etc., to study this code to determine whether the use of any part or all of the recommended practices would be advantageous in their work.

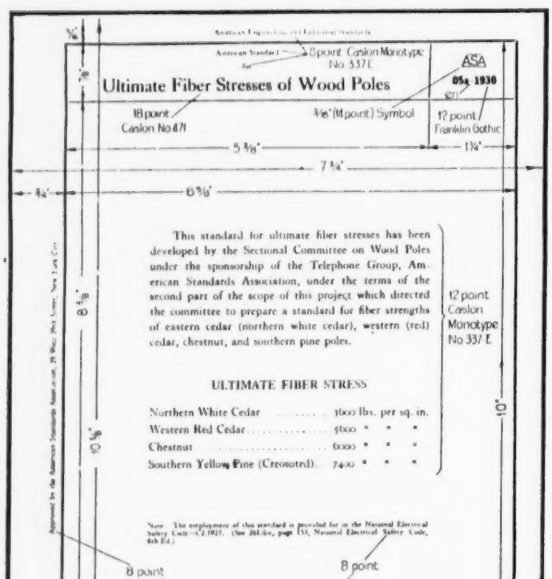
It is recognized that present industrial conditions are unfavorable to making extensive changes in existing printing arrangements which entail any considerable expense. However, this may well be a favorable time to study the situation with respect to

[1] American Telephone and Telegraph Company. Secretary of the Special Committee on Form and Arrangement of Published Standards.

publication details to determine whether the recommended practices may not be the means of effecting economies in the cost of future publications.

The form and arrangement of the printed standards, which have been published since the beginning of the activity of the American Standards Association, have presented one of the troublesome problems of the national standardization movement. It is generally agreed that the appearance of these published standards should possess in as large a measure as possible certain uniform qualities such as size of page and details of printing usually termed the "format." The poor achievement in this aspect of standardization work is laid directly to the procedure provided for setting up the standards. Under this established procedure one of the sponsors charged with the development of the standard under American Standards Association procedure has usually undertaken the publication of the standard and become the principal distributor of the printed standard. Increasingly, however, the standards are now being published and distributed by the American Standards Association.

Under the present arrangement for publishing


Ultimate Fiber Stresses of Wood Poles
ASA
18 point Caslon No 471
12 point Franklin Gothic
This standard for ultimate fiber stresses has been developed by the Sectional Committee on Wood Poles under the sponsorship of the Telephone Group, American Standards Association, under the terms of the second part of the scope of this project which directed the committee to prepare a standard for fiber strengths of eastern cedar (northern white cedar), western (red) cedar, chestnut, and southern pine poles.
12 point Caslon Monotype No 337 E
ULTIMATE FIBER STRESS
Northern White Cedar ..... 3600 lbs. per sq. in.
Western Red Cedar ..... 5000 " " "
Chestnut ..... 6000 " " "
Southern Yellow Pine (Creosoted) .. 7400 " " "
8 point
8 point
Caslon Monotype No 337 E
8 point
6 point
6 point

Specimen page of single sheet standard

standards a large number of organizations acting as sponsors for American Standards Association projects are interested in publishing American Standards. These groups are also carrying on standardizing activities within their own organizations. In the process of working out their problems in form and arrangement for publications with different printers, the publications of various groups naturally show considerable differences. There were divergent opinions on how far the committee should go in making selections from these differences.

Furthermore, if the practices were solely for use by groups that have already gathered experience in publishing standards and similar printed matter, there would be less justification for going into detail, but from the broader standpoint of the needs of all groups engaged in the preparation and publication of standards, the committee decided that a real service would be rendered those not so well acquainted with the problems by including practical information in considerable detail and a helpful discussion of the background of the work.

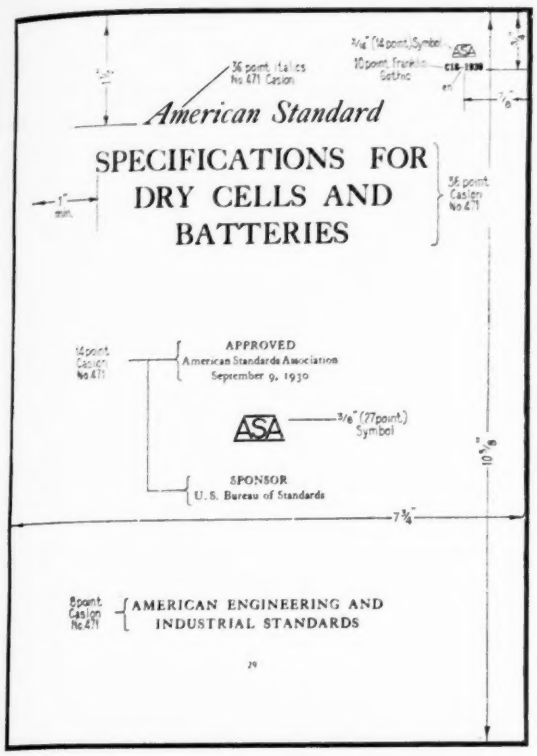
Three pages of illustrations from the code are reproduced below to indicate the method of applying the recommendations pertaining to style and size of type, spacings, margins and general appearance. The pages are for a single sheet standard and a title page and a text page for a large pamphlet standard.

It may be of interest in this brief discussion of the code to mention a few of the more interesting problems which have been studied in the preparation of the recommended practices.

The subject of printing or typography dealing with appearance, workmanship and legibility of the printed page is the most difficult part of such a code to reduce to a set of rules. The subject can only be treated adequately in technical aspects by printing experts. Furthermore, the wide range of material to be put into printed form in various types of standards renders it impracticable to set up all the different practices necessary to deal with every situation.

However, admitting these difficulties and limitations, it is desirable to recommend certain elementary practices in a specific form rather than to leave the subjects untouched. A few simple practices covering arrangement, styles and sizes of type, margins and spacings, will serve as a basis for printing the simpler forms of standards and provide a uniform starting point from which to work out any departures needed to obtain the best results in larger and more elaborate pamphlets. The recommended practices should be regarded not as hard and fast rules but as guides for the preparation of standards. However, uniformity will be obtained only in the degree that the same practices are generally followed in the preparation of the standards.

The printing of tabulated matter has always required more than ordinary consideration. Variations



Specimen cover of large pamphlet standard

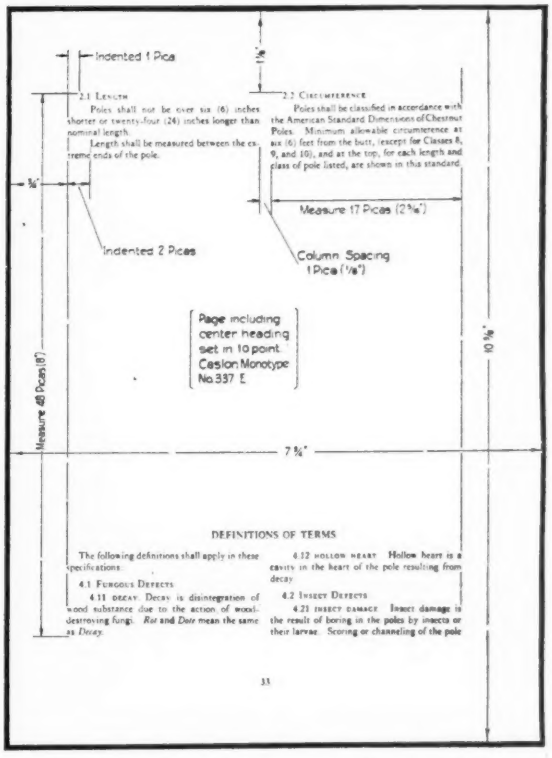
in size of tables and number of columns, the adequacy of headings and the location of the tables present problems which must be considered along with legibility of printing. The code recognizes this and suggests a larger variety of sizes and styles of type to assist the printer. Diagonal lines for common fractions are preferred because they permit the use of larger numerals. Care is needed to insure legibility in closely spaced columns of numerals, especially those containing common fractions.

In the selection of paper stock for standards for various usages a question was raised as to the value of including in the code detailed specifications covering the quality of paper. It is recognized that improvement and further simplification in the recommended practices regarding quality of paper may be worked out and that technical specifications for fixing quality and methods of testing paper to determine quality have not been perfected nor generally agreed to, but it was considered worth while to describe the various grades of paper desired for standards in the best manner at present available.

The selection of suitable page sizes for published standards also presented a problem. A large size is needed for single sheet standards and pamphlet standards and a half-sized page for small (handy) pamphlet standards. Four page sizes for printing single sheet and large pamphlet standards are recognized in the code. These sizes are 6 x 9, 7¾ x 10⅝, 8 x 10½ and 8½ x 11 inches, all of which are in general commercial use. A statement regarding the status of the four sizes for publication of standards is given in the introduction of the code. Practices in the code involving surface dimensions, such as margins, spacings, etc., are based for simplicity in presenting the subject on the 7¾ x 10⅝-inch page.

At the time the Committee on Form and Arrangement began its work, another committee was endeavoring to simplify the matter of page sizes and the subject was not included in the work assigned to the Committee on Form and Arrangement. The committee dealing with page sizes was unable to carry through the adoption of suitable page sizes for standards and it became necessary for the Committee on Form and Arrangement to study the suitableness of recognized sizes as bases upon which to build up practices for form and arrangement. Each of the above sizes is being used by groups engaged in developing and publishing standards, both in their own organizations and as sponsors for standards prepared under the American Standards Association procedure.

For those who feel that the continued use of four different page sizes for publishing standards will be



Specimen page of large pamphlet standard

undesirable and out of line with the purpose of the standardization movement, and who would like to study various aspects of the subject, it may be of interest to suggest some of the features related to page size.

Factors affecting size

Paper stock sizes in the quality of paper desired for various usages to which the printed standards are to be subjected should be studied. A given area of printed text with desired widths of margin has a definite relation to the number of pages that can be obtained by folding and trimming stock sizes of sheets with a minimum of wasteage. The total area of printed text is related to the size and style of type, vertical spacing of lines (leading), number of columns and length of printed line, etc., and the number of text pages.

In addition to the dimensional features suggested above the page size is related to the important questions of binding numbers of standards, fitting standards to various filing facilities and the handling and mailing of printed standards.

Certain aspects of printing or typography also should be considered in studying page sizes. In reading a given size of type with usual leading between lines, there is a maximum length of line beyond which it is difficult to associate with the beginning of the next line. This aspect of reading, together with the greater difficulty of reading certain type faces, may make it desirable to use two or more columns of text for the larger page sizes. As has been mentioned before, perhaps the most difficult problem in connection with page size is the makeup of tables and the location of tables of various sizes. In laying out large tables, there is a tendency to waste space and produce a poor appearance or to condense or crowd the type and decrease the legibility in an effort to get more tables on a page. One of the principal arguments advanced for a large page size is the greater facility in placing tabular matter and in handling diagrams or other illustrations.

Considerable information regarding planning printing work, paper stock sizes and the number of pages of various sizes that can be folded from each size of sheet was obtained from the book, "Commercial Engraving and Printing," by Charles W. Hackleman, 1921 edition, page 400; and from the pamphlet "Report of the Committee on the Simplification of Paper Sizes," a publication of the Bureau of Standards of the Department of Commerce, August 30, 1921, page 25.

Considerable interest has been shown in the merits of the geometric basis known as the "hypotenuse oblong" for proportioning the length or width of the page when one of these dimensions is fixed. In this, the length of the long side is the hypotenuse of the right triangle having each of its other two sides equal to the given width of the page. Obviously the proportion of length to width is equal to the square root of two. The hypotenuse oblong is the only rectangle so proportioned that when its length is halved or its width is doubled the resulting oblong retains the original proportion of length to width.

A discussion of this subject is given in some detail on page 402 of the book, "Commercial Engraving and Printing," cited above. A table is also shown for a range of sizes of pages proportioned in this way, with corresponding notes indicating commercial uses for the various sizes. One of the most important advantages in a system of sizes built up in this manner is the facility of enlarging or reducing the page matter for reproduction without altering the proportions.

In working out final adjustments in the recommended practices for sizes and styles of type, arrangements of text, etc., considerable advantage was derived from the preparation and publication of several actual standards in which sponsors and the American Standards Association staff endeavored to follow the recommendations.

The following more recent standards published by the American Standards Association approximate the practices contained in the code:

American Recomended Practice—Code for Testing Domestic Refrigerators Using Ice—B38c1—1931 (A large pamphlet of 10 pages)
American Recommended Practice—Safety Code for Coal Mine Transportation—M15—1931 (A small pamphlet of 18 pages)
American Recommended Practice for Drainage of Coal Mines—M6—1931 (A small pamphlet of 46 pages)

Simplified Practice Recommendations on Slate Reaffirmed by Industry

Simplified Practice Recommendations 13-28, structural slate for plumbing and sanitary purposes; 14-28, roofing slate; and 15, blackboard slate, have been reaffirmed, without change, by the standing committee of the industry, according to an announcement by the Division of Simplified Practice of the Bureau of Standards.

These recommendations, which were proposed and developed by the industry, have been instrumental in reducing the number of sizes and varieties of these slate products 83, 50, and 79 per cent, respectively.

The National Directory of Commodity Specifications

by

A. S. McAllister, *Assistant Director*
National Bureau of Standards

The second edition of the National Directory of Commodity Specifications, which was issued in May of this year, is another important step in the forward progress of a movement initiated by Herbert Hoover at the time when he was Secretary of Commerce. It resulted from a desire to aid the State purchasing agencies which from time to time had called on the Department of Commerce for assistance in the formulation of standards and specifications for use in their purchases. A conference of these State purchasing agents was called by Mr. Hoover on May 25, 1923. At this conference approval was given to the Department's proposal to review the specifications then in use and to formulate and issue a handbook or encyclopedia covering the entire field of standards, specifications, simplifications, and methods of test.

An "Advisory Board" was created to cooperate with the Department of Commerce in the formulation of detailed plans and was so organized as to obtain the benefits of the cooperative thought of representatives of technical and trade associations, representatives of associations of buyers, and representatives of manufacturers. It was composed of representatives of 14 national organizations which were vitally interested in the preparation, unification, and utilization of specifications. These organizations are given herewith:

American Electric Railway Association.
American Engineering Standards Committee, now the American Standards Association.
American Hospital Association.
American Hotel Association.
American Society for Testing Materials.
Associated Business Papers (Inc.).
Associates for Government Service (Inc.).
Chamber of Commerce of the United States.
National Association of Manufacturers.
National Association of Purchasing Agents.
National Conference of Business Paper Editors.
National Conference of Governmental Purchasing Agents, now known as the Governmental Group of the National Association of Purchasing Agents.
National Electric Light Association.
Society of Automotive Engineers.

On October 24, 1923, the Advisory Board unanimously indorsed the plan for issuing a classified list of the then existing specifications with sufficient descriptive matter to show the source of each specification and the date of its issue and to indicate its scope. It also voted for the creation of three committees, one on classification, the second on form and size, and the third on scope. A decimal system of classification based on the source of the material rather than the use of the commodity was recommended by Committee No. 1. Committee No. 2 recommended that the size of the publication be 7¾ by 10⅝ inches, the "Standard Catalog" size.

Committee No. 3 was headed by Mr. A. W. Whitney who was at that time chairman of the American Engineering Standards Committee which later became the American Standards Association. He not only acted as chairman of Committee No. 3 but as the representative of the American Engineering Standards Committee took a very active part in the development of the whole project. Committee No. 3 recommended that the work of the publication be broken into two distinct parts, a "Directory of Specifications" and an "Encyclopedia of Specifications," the directory to consist of an index of existing specifications, the explanatory matter being restricted to what was necessary for the elucidation of the scope of the particular specification, and the encyclopedia to contain the actual text of the specifications or abstracts thereof.

The first edition of the National Directory of Commodity Specifications was issued by the National Bureau of Standards in 1925. It was compiled from material furnished by national technical and trade associations, by Governmental bodies representative of Federal, State, county, and municipal purchasing agencies, and by several of the large manufacturing and transportation companies. The various specifications were classified in accordance with a decimal system of classification which grouped together the specifications from various sources that were related to similar or identical commodities. Ten major

divisions were used in the classification, comprising: Animals and Animal Products; Vegetable Food Products; Other Vegetable Products; Textiles; Wood and Paper; Nonmetallic Minerals; Metals and Metal Products; Machinery and Vehicles; Chemicals and Allied Products; and Miscellaneous.

The general plan contemplates the publication and periodical revision of the National Directory of Commodity Specifications covering the whole field of commodities and the sectional publication and periodical revision of the Encyclopedia of Specifications containing the actual text of the specifications. A section of the Encyclopedia will be devoted to each of the 10 major divisions appearing in the Directory. In 1927 the first volume of the Encyclopedia entitled, "Standards and Specifications in the Wood Using Industries" was issued by the National Bureau of Standards and in 1930 the second volume was published under the title, "Standards and Specifications for Nonmetallic Minerals and Their Products."

The second edition of the National Directory of Commodity Specifications has been limited to the specifications, standards, and methods of test which are nationally recognized. This has meant the elimination of the specifications of State, county, and municipal governments, and of private manufacturing and transportation companies. However many of the specifications eliminated will actually be found to be covered in specifications adopted by some national association or organization which is listed in the revised Directory. For example, the specifications of the Railway Companies follow in general the specifications and standards of the American Railway Association. In spite of this elimination of a large group of specifications, the material in the present edition requires 548 pages as compared to 379 pages in the former. This increase in size is mainly due to the incorporation of an explanatory item with each specification which briefly summarizes the technical characteristics covered by the specification, the scope of the specification, and special applications of the commodity being specified. Cross referencing has also been much amplified in the present edition.

As a reference volume for the technician interested in the preparation or revision of specifications, standards, or methods of test, the National Directory of Commodity Specifications should prove an invaluable help. It has been prepared with the point in view of making reference to the specifications on any particular commodity both easy and rapid. The summarizing items help the reader to visualize the particular application of the individual specification and the technical characteristics covered so that a selection of those specifications which most nearly fit his particular needs is possible. Copies of these selected specifications obtained from the sponsoring bodies may prove that the specification, whose preparation or revision he had contemplated, was in harmony or in conflict with a specification already nationally used.

In a similar way the Directory should prove indispensable to the purchaser who uses specifications. It gives him a ready reference to those specifications which are not only well known and widely used throughout the country but which also represent the combined experience of user and producer and in which controversial, ambiguous, and unimportant requirements have largely been eliminated. It frees bids from those extra charges that are usually added to take care of unfamiliar requirements in specifications with which the supplier has had little experience and permits advantage to be taken of the producer's ability to supply material at less cost when his production is concentrated on a few well known specifications.

Germany Plans Standardization of Motor Fuel

Recent announcements indicate that the German government plans to standardize motor fuel within a short time. Utilization will be made of gasoline from domestic petroleum, accidently discovered in connection with drilling for potash some two years ago, with which will be blended alcohol, benzol, and some methanol. It is probable that certain amounts of imported gasoline will be required to supplement the German industrial products in order to give a standard motor fuel of a uniform character, although the importation of foreign petroleum products will be minimized.

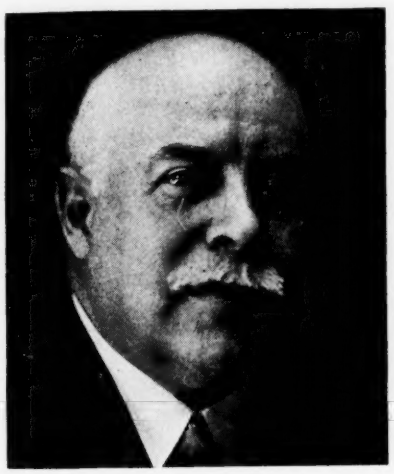
Motors of Standardized Design Permit Interchangeability

As a general thing, of course, it is desirable to equip the plant with motors of standard design. This will prove advantageous in case it becomes necessary to secure parts for replacements, and also because standard motors are now made according to standardized mounting dimensions and are therefore the more readily installed for service on machines. They can also be easily changed around from one machine to another whenever such a procedure becomes desirable, as when some unit becomes obsolete or is replaced with another.—*Reprinted from the "Purchasing Agent", June, 1932.*

George Kimball Burgess

Members of the American Standards Association have been grieved to learn of the death on July 2 of Dr. George Kimball Burgess, Director of the Bureau of Standards and member of the Board of Directors of the American Standards Association, following a cerebral hemorrhage.

Dr. Burgess had been active in ASA affairs for thirteen years, having been one of the original three representatives of the Department of Commerce under the old American Engineering Standards Committee. (The other two representatives were the late Drs. S. W. Stratton and E. B. Rosa, then Director and Chief Physicist respectively.) In this relation he continued until the reorganization into the American Standards Association, upon which he became a member of the Board of Directors upon nomination by the Secretary of Commerce. He recently served as a member of the Committee on Certification and Labeling, to the preparation of whose report he devoted much time and thought. Among his numerous activities in the ASA was the chairmanship for a number of years of the Committee on International Cooperation.



George Kimball Burgess

Dr. Burgess received his scientific education at the Massachusetts Institute of Technology and the University of Paris, from the latter of which he took his doctorate in 1901. The subject of his dissertation was the determination of the gravitational constant in absolute units, an experiment which is popularly known as "weighing the earth." After teaching at the Universities of Michigan and California he joined the staff of the Bureau of Standards in 1903 as assistant chief of the Heat Division, being associated with the late Dr. C. W. Waidner.

In 1913 he became Chief of the newly organized Division of Metallurgy, in which position he continued until his elevation to the directorship of the Bureau in 1923, following the resignation of Dr. Stratton.

Dr. Burgess was an unusually important figure in the field of standardization in which his activities and contributions covered an extremely wide range. He was, for example, ex officio Chairman of both the National Screw Thread Commission and the Federal Specifications Board; and was the American representative in the International Conference on Weights and Measures which through the International Bureau of Weights and Measures has charge of the fundamental standards of weight, length, etc.

Perhaps the piece of scientific work by which Dr. Burgess will be most widely known is that on the Waidner-Burgess standard of light, which now bids fair to become adopted as the official standard. It is based on the quantity of light emitted from a unit opening in a black body at the melting point of platinum.

On a former occasion, in October last year, Dr. Burgess had suffered a slight cerebral hemorrhage, from which he had apparently made a good recovery.

P. G. AGNEW

Chapman Elected President of A.S.T.M.

Cloyd M. Chapman, vice-president of the American Standards Association, and chairman of the ASA Standards Council, was elected to the presidency of the American Society for Testing Materials for the coming year, at the Society's annual meeting in Atlantic City on June 20. William H. Bassett, metallurgical engineer of the American Brass Company, was elected vice-president of the Society.

Mr. Chapman studied mechanical engineering at Cornell University in the class of 1898. He served as Engineer Officer in the Navy during the Spanish American War. At its close, he was employed by Edison as assistant in his private laboratory; later he engaged in mining exploration work for Edison in Mexico, Canada and Australia. From 1905 until 1920, he was employed by Westinghouse, Church, Kerr and Company, responsible for design and construction work and as engineer of tests. Since 1920 he has been retained as consulting engineer by several large companies. He has designed and constructed several important electrical generating plants, and also the first plant in America for manu-

facturing potash from alumite. Other of his major developments include the munition plant at Rock Island Arsenal.

The members of the A.S.T.M. Executive Committee elected for the coming year are: H. A. Gardner, J. O. Leech, J. T. MacKenzie, J. C. Ramage, and H. S. Vassar.

Ethelbert Stewart Leaves Standards Council

The American Standards Association announces with deep regret the withdrawal of Ethelbert Stewart from the ASA Standards Council following his retirement last month as Commissioner of Labor Statistics of the United States Department of Labor. Mr. Stewart has been a member of the Standards Council since 1922. In this position, and as a member of the Safety Code Correlating Committee, he has been constantly active in the development and promotion of a national safety code program. To him goes a large share of the credit for important accomplishments made in this field.

As the representative of the International Association of Industrial Accident Boards and Commissions, Mr. Stewart will continue as a member of the Safety Code Correlating Committee and also of the Section Committee on Accident Statistics.

Foreign Standards Available from ASA

New foreign standards available to Sustaining-Members for loan or purchase through the ASA office are listed below. They are available in the language of the country under which they are listed. In requesting copies of the standards it is necessary to list only the ASA serial numbers preceding the titles. Send either a post-card or a note containing only the name and address of the person wishing to receive the standards, and the numbers of the standards desired. The card or envelope should be addressed to the American Standards Association, 29 West 39th Street, New York.

ASA Serial Number

Norway

179. V-shaped tongued and grooved, and V-shaped double-tongued and grooved boards
180. Weatherboards, ⅜ in. by ⅞ in. by 7 in.
181. Export basket for berries
182. Wooden cases for cranberries
183. Wooden cases for packing cauliflower
184. Wooden cases for packing cucumbers

Germany

185. Glasses for safety goggles
186. Safety goggle with nickel frame with hinges
187. Safety goggles with side protection (Stroof type safety goggle)
188. Technical purchase specifications for safety goggle glasses
189. Marks and inscriptions for reference gages for work manufactured to limits
190. Loop insulator, working voltage up to 750 v for electric railways
191. Three-phase motors for under-ground pumping plants
192. Rolled steel shapes, rods and strips; materials
193. Tire valve upright form connection dimensions, automobile construction

Austria

194. Chairs, hospital equipment
195. Shingles made of asbestos and cement (artificial shingles)

Canada

196. Canadian electrical code, part two—Essential requirements and minimum standards covering electrical equipment, specification no. 1, construction and test of power-operated radio devices

Holland

197. Pipe linings and accessories, brass and bronze screwed unions for gas and water pipes, bosses
198. Pipe linings and accessories, brass and bronze screwed unions for gas and water pipes, liners
199. Pipe linings and accessories, brass and bronze screwed unions for gas and water pipes, male screw pieces
200. Pipe linings and accessories, brass and bronze screwed unions for gas and water pipes, nuts and washers
201. Seamless brass tubes
202. Seamless copper tubes, dimensions and weights
203. Seamless copper tubes for steam and feed water lines for sea-going vessels, dimensions and weights
204. Standard sizes of paper
205. Bib tap water supply, body
206. Stop and bib tap for water supply

Report on International Electrical Congress

More than 300 reports and papers on electrical and related subjects were presented before the 13 sections of the International Electrical Congress held in Paris from July 5 to 12, according to the report of Dr. A. E. Kennelly, chairman of the American delegation, to Dr. Clayton H. Sharpe, president of the U. S. National Committee of the International Electrotechnical Commission.

Some of the outstanding papers presented at the Congress by American authors were:

"The search for better ferro-magnetic materials," by T. D. Yensen
"Development of electrical machinery in the U. S.," by P. L. Alger and F. D. Newbury
"Production and transformation of electrical energy in the U. S.," by F. A. Allner, A. D. Bailley, A. G. Christie, and F. C. Hanker.
"Evolution and development of railway electrification in the U. S.," by E. L. Moreland
"World-wide telephony, its problems and future," by F. B. Jewett and B. Gherardi

The American delegation included, in addition to Dr. Kennelly, Dean Harold Pender, secretary, Dr. H. L. Curtis, Dr. V. Karapetoff, Mr. A. S. Garfield, and Mr. H. E. Shreeve. Dr. Kennelly, who is professor emeritus of electrical engineering at Harvard University, was appointed by the Committee of Organization as the American vice-president of the Congress. Over 30 nations were represented at the Congress with more than 1300 individual members in attendance. No official actions were taken, according to Dr. Kennelly.

The transactions of the Congress, to be published in 14 or 15 volumes totaling about 8000 pages, are expected to be ready for distribution about November 1, 1932.

Underwriters' Laboratories Re-examination Service

Purchasers, inspectors, municipal authorities, and many others are frequently interested in knowing whether or not devices and materials have been listed by Underwriters' Laboratories.

There are many devices and materials listed by Underwriters' Laboratories to which its Label Service form of inspection is not applied but which are inspected under the Laboratories' Re-examination Service. To determine whether or not such goods have been passed upon by the Laboratories it has hitherto been necessary to search through rather voluminous lists for the manufacturer's name and the article and to compare the catalog number or other marking of the device with the description given.

In order to provide, for devices and materials under its Re-examination Service, a more positive, convenient, and immediately available means of determining whether or not a device or material is listed, the Laboratories have now made available, for use under suitable regulation, a marker to be applied to such goods. This marker is a circular design bearing the words "Listed Under Re-examination Service, Underwriters' Laboratories" which is to be attached to the goods or which will appear on the carton or other container in which the device or material is sold. It may appear in various color combinations, under the Regulations of the Laboratories which govern its use.

Federal Specifications Available from ASA

The following standards have recently been published by the Federal Specifications Board. Copies may be purchased or borrowed through the ASA office:

Asphalt; emulsion, quick-breaking-type (for) road work
Blankets; cotton, and cotton-warp and wool-filling
Bolts; nuts, studs; and tap rivets (and material for same)
Brooms; fiber
Cabinets; stationery, storage, and clothing (steel)
Cases; transfer, steel
Cheesecloth; bleached and unbleached
Cheesecloth; (for) wiping purposes (remnants and seconds)
Cloths; wiping, cotton, mixed, sterilized (for) machinery
Crushed stone and crushed slag; (for) binder course, sheet-asphalt pavement
Crushed stone and crushed slag; (for) bituminous concrete base or surface course
Crushed stone and crushed slag; (for) bituminous-macadam base or surface course
Crushed stone, crushed slag, and gravel; (for) bituminous-surface treatment
Crushed stone and crushed slag; (for) water-bound base or wearing course

Iron, gray; castings
Iron, gray, high-test (semisteel); castings
Lamps; electric, incandescent, large, tungsten-filament
Macaroni, spaghetti, and vermicelli
Oil; lubricating, class D (for internal-combustion engines other than aircraft and Diesel)
Paper; carbon, lightweight (typewriter), black
Paper; carbon, standard-weight (typewriter), black
Paper; cross-section, printed, drawing and tracing
Paper; cross-section, ruled
Paper; general specifications
Pipe-fittings; bronze (threaded), 250-pound
Safes; insulated
Sausage
Scales, weighing; general specifications
Shades, window; rollers, slats, cords and accessories
Steel; staybolt (boiler)
Tables; and typewriter-stands, wood
Thread; cotton
Toweling; crash, cotton, and cotton and linen-mixed
Towels; cotton, glass
Tubing; electrical, metallic
Unions; malleable-iron or steel, 300-pound
Wood-preservative; coal-tar creosote (for) ties and structural timbers

Employment Services for Engineers

Notable work on behalf of unemployed engineers as well as of companies with engineering positions to be filled, is being done by both the Engineering Societies' Employment Service and the Professional Engineers' Committee on Unemployment, both located in the Engineering Societies Building, 29 West 39 Street, New York. The Engineering Societies' Employment Service places engineers affiliated with the American Institute of Electrical Engineers, the American Institute of Mining and Metallurgical Engineers, The American Society of Civil Engineers, the American Society of Mechanical Engineers, and the American Society of Naval Architects and Marine Engineers. The services of the Committee on Unemployment are available to all professional engineers living within the metropolitan New York area.

In the Philadelphia area, an employment service for engineering, architectural, chemical, and other technical talent is offered by the Philadelphia Technical Service Committee at 1317 Spruce Street. The Committee was organized by the Engineers' Club of Philadelphia and is affiliated with the Philadelphia chapters of 12 engineering societies.

New Volume of Government Paper Standards

Purchasing agents and others concerned with the problems of securing various types of paper for printing and binding will find the new volume of U. S. Government paper specifications and standard samples of paper of great value. Through the courtesy of the Public Printer, the American Standards Association has received a copy of the volume, which is available for loan to Sustaining-Members.

The types of paper covered by specification and sample are: newsprint, book, lithograph, mimeograph, writing, map, manifold, bond, parchment deed, ledger, index, tissue, cover, manila, kraft, tag board, cardboard, paraffin, gummed, blotting, binders board, and other papers for special uses. The book includes a valuable section on inspection and testing.

Tire and Rim Association Publishes Year Book

The 1932 *Year Book* of the Tire and Rim Association, containing the Association's standards for rims for automobiles, airplanes, and motorcycles, has been published by the Tire and Rim Association, 1401 Guarantee Title Building, Cleveland, Ohio, and may be purchased for two dollars per copy.

In addition to the Society's own standards, the *Year Book* includes the national standards for rims which have been published by the German national standardizing body (Deutscher Normenausschus), and tentative standards published by the Society of Motor Manufacturers and Traders, Ltd., of Great Britain.

Control of Quality of Manufactured Products

The price of "Economic Control of Quality of Manufactured Products," by W. A. Shewhart, published by D. Van Nostrand Company of New York, is $6.50 per copy. The price was incorrectly stated to be $7.50 in the July issue of INDUSTRIAL STANDARDIZATION.

ASA PROJECTS

Sectional Committee Reports at A.S.T.M. Meeting

Brief notes covering the activities of certain sectional committees working under the procedure of the American Standards Association, reported at the 35th Annual Meeting of the American Society for Testing Materials, held in Atlantic City from June 20 to 24, are given below:

Sectional Committee for Methods of Testing Petroleum Products and Lubricants—Z11 (Identical in personnel with A.S.T.M. Committee D-2.) Of the standards under the jurisdiction of this committee action was taken, subject to letter ballot approval of the entire personnel, recommending as follows:

(1) Revision of American Standard
Z11k-1930—Method of Test for Distillation of Natural Gas Gasoline (A.S.T.M.: D216-30).
Incorporation of A.S.T.M. tentative revision, recommended for advancement by A.S.T.M. Committee D-2.

(2) Advancement of American Tentative Standards to American Standards.
K8-1923—Flash Point of Flammable Liquids (A.S.T.M.: D56-21).
Z11e-1930—Cloud and Pour Points of Petroleum Products (A.S.T.M.: D97-30).
(Including changes recently recommended by A.S.T.M. Committee D-2 and subject to letter ballot of that committee.)
Z11v-1930—Melting Point of Petrolatum (A.S.T.M.: D127-30).
Z11w-1930—Determination of Autogenous Ignition Temperatures (A.S.T.M.: D286-30).

The sectional committee also recommended, subject to letter ballot, that the following A.S.T.M. standard and tentative standard methods be submitted to the ASA for approval as American Standard or American Tentative Standard.

(1) For Approval as American Standard:
Carbon Residue of Petroleum Products (Conradson Carbon Residue) (A.S.T.M.: D189-30).
Testing Gas Oils (Gravity, Distillation, Sulphur, Carbon Residue, Pour Point, Viscosity, Water) (A.S.T.M.: D158-28).

(2) For approval as American Tentative Standard:
Determination of Expressible Oil and Moisture in Paraffin Waxes (A.S.T.M.: D308-29T).
Distillation of Crude Petroleum (A.S.T.M.: D285-30T).
Definitions of Terms Relating to Petroleum (A.S.T.M.: D288-31T).
Dilution of Crankcase Oil (A.S.T.M.: D322-30T).
Precipitation Number of Lubricating Oils (A.S.T.M.: D91-30T).

The Society has further advised that an editorial change has been made for clarification in the Standard Method of Test for Thermal Value of Fuel Oil (A.S.T.M.: D240-27 and ASA: Z11n-1928).

Sectional Committee on Copper Wire (same personnel as A.S.T.M. Committee B-1). It was reported that the work on copper cable had progressed to the point where "Specifications for Hard-Drawn Copper Transmission Cable" had been offered for publication by the Society as a tentative standard.

A.S.T.M. Committee B-1 called attention to the success of the work of a joint committee of the Society, the American Railway Association, and American Electric Railway Association with regard to certain minor changes in A.S.T.M. Standard Specifications for Round and Grooved Hard-Drawn Copper Trolley Wire (B47-30) and for Bronze Trolley Wire (B9-30). It was recommended to the A.S.T.M. Executive Committee that, subject to favorable action by letter ballot of the Society and by the ARA and AERA, steps be taken to put these amended specifications before the ASA for approval as American Standards on the basis of the joint recommendations of the three societies participating in their adoption.

Cement and Concrete. A.S.T.M. Committee C-1 on Cement reported extensive changes and revisions in A.S.T.M. Standard Methods of Testing Cement —C77-30 (ASA: A1b-1931). These revisions were recommended for immediate adoption and are now out to letter ballot of the Society, prior to their consideration by the Sectional Committee on Cement.

As a part of its business, A.S.T.M. Committee C-9 on Concrete took cognizance of certain differences between standards of the Society and of the American Association of State Highway Officials and recommended certain changes for publication as tentative in Method of Test for Organic Impurities in Sands for Concrete (C40-27) and in Method of

Test for Sieve Analysis of Aggregates for Concrete (C41-24). These two standards were submitted by the Society to the ASA in 1929 for approval as American Standard but action by ASA has been deferred, pending further consideration by the A.S.T.M. as indicated above.

A.S.T.M. Committee D-5 on Coal and Coke approved for publication a tentative revision of the American Standard for Methods of Laboratory Sampling and Analysis of Coal and Coke (A.S.T.M.: D27-30 and ASA: K18-1930), to be added, when adopted as standard, to the standard methods as alternate and accepted procedure. There has also been recommended for publication as tentative, a method of sampling coke. As this is similar in many respects to the American Standard for Sampling Coal (A.S.T.M.: D21-16 and ASA:Xi-1921), it may be incorporated with the latter when adopted as standard.

For the Sectional Committee on Road and Paving Materials—A37—H. F. Clemmer, Engineer of Tests and Materials, Engineering Department of District of Columbia, Washington, D. C., has succeeded P. J. Freeman as chairman.

Draft Standard for Drawings and Drafting Room Practice

A proposed American Recommended Practice for Graphical Symbols to be used on drawings has been published for criticism and comment. This proposal was prepared by the subcommittee on Graphical Symbols on Drawings (chairman, Thomas E. French), of sectional committee Z14 on Drawings and Drafting Room Practice. It covers 44 symbols for plumbing fixtures, 17 symbols for conventional rivet layouts, 21 symbols for heat-power apparatus, 32 symbols for electric power apparatus, 27 symbols for pipe and pipe fittings, and 23 symbols for heating and ventilating layouts.

The symbols for plumbing fixtures were originally proposed by the National Association of Master Plumbers of the U. S., and have been reviewed by the Structural Service Committee of the American Institute of Architects. The symbols for conventional rivet layouts were developed by the subcommittee on Line Work. It is understood that these symbols have the approval of the American Institute of Steel Construction. Symbols on heat-power apparatus were taken over from the Advisory Committee on Steam Turbines of the International Electrotechnical Commission, and are endorsed by the A.S.M.E. Committee on Power Test Codes. The symbols for electric power apparatus form part of the recommendations formulated by sectional committee Z10 on Scientific and Engineering Symbols and Abbreviations. The symbols for pipe and pipe fittings, and for heating and ventilating layouts were taken over from the American Society of Heating and Ventilating Engineers and partly from the German national standards in this field. Copies of the above-mentioned draft are available, as a loan to those interested, from the American Standards Association, 29 West 39th Street, New York.

ASA Approves Standard for Screen Testing of Ores

Methods for Screen Testing of Ores (Hand Method) has been approved by ASA as American Recommended Practice with the designation of M5-1932. In approving this standard attention is called to the work of the Sectional Committee on Sieves, Z23, which may ultimately affect some of the provisions of the new standard. Approval does not prejudice any future recommendations from the Sectional Committee on Sieves.

The new standard has been developed by the Milling Committee of the American Institute of Mining and Metallurgical Engineers under the chairmanship of G. H. Clevenger, Consulting Metallurgist, Boston. For some years investigations of crushing phenomena emphasized the necessity for standard methods of gauging particle size and led to the preparation of this method of laboratory practice, which has particular application to technical studies where close control is essential. Research programs actively conducted by Ernest A. Hersam, Professor of Metallurgy at the University of California, and John Gross, Metallurgist of the U. S. Bureau of Mines at Salt Lake City, were of much value in providing a ground-work for the committee. In draft form the standard has had wide circulation in the mining industry since 1930.

Copies of this standard will be available shortly and may be ordered from the ASA.

A.S.T.M. Representative on Petroleum Committee

O. C. Bridgeman, National Bureau of Standards, Washington, D. C., has been appointed representative of the American Society for Testing Materials on the Sectional Committee on Methods of Testing Petroleum Products and Lubricants (Z11).

Proposed American Standard for Punch and Die Sets

A proposed American Tentative Standard on Punch and Die Sets (B5i) has been published for general criticism and comment. The draft was developed by Technical Committee 9 on Punch and Die Holders, which is a subcommittee of the Sectional Committee on Small Tools and Machine Tool Elements (B5). The subcommittee is composed of specialists in the metal stamping field.

The draft gives the most important dimensions of five types of punch and die sets, as follows: regular series; reverse series; long series; round, back-post series; and round, diagonal-post series. It also gives dimensions of guide posts, guide post bushings, steel punch shanks, bolts, clamps, and washers for the several sets, and specifies the material of which the different component parts should be made.

Copies of the draft standard may be borrowed from the American Standards Association. Criticism or comment should be addressed to Sidney Diamant, chairman of Technical Committee 9, American Society of Mechanical Engineers, 29 West 39th Street, New York.

Clean Coal Committee Holds Organization Meeting

Although all organizations that had been invited to appoint representatives had not made definite designations, the organization meeting of the recently approved Sectional Committee to develop specifications for clean bituminous coal was held in Pittsburgh at the headquarters of the Engineers Society of Western-Pennsylvania on June 29, 1932. At this meeting, attended by seventeen representatives of sixteen organizations, several of whom were also acting as observers for other groups, the project before the committee was discussed at length. To serve as officers, the committee elected Newell G. Alford, mining engineer of Eavenson, Alford & Hicks, Pittsburgh, as chairman, and H. M. Lawrence, mining engineer of the ASA staff, as secretary. An executive committee of nine was also chosen.

After careful consideration of the scope of the project, the committee voted to limit its work for the present to bituminous coal, 2 inch (circular) and over in size, in accordance with the following scope:

> Specifications outlining allowable limits of inacceptable material in prepared bituminous coal, whether mechanically cleaned or not, in sizes 2 in. and above; the purpose being to define clean coal and not to standardize screen sizes.

However, the possibility of an extension of the scope to sizes smaller than 2 inch was considered and it was decided that the executive committee should study the difficulties that might be encountered and the advantages that might accrue from such an extension.

Discussion of the determination of inacceptable foreign material in bituminous coal brought out the fact that there are no standard methods available. Differences in technique of the float-and-sink test (the test that is most widely used) are not serious but do require harmonizing. It was decided to appoint a subcommittee on methods of sampling and testing. The cooperation of the American Society for Testing Materials and the U. S. Bureau of Mines is to be enlisted to bring about unification of these methods into accepted national standards.

Project Requested for Non-Shatterable Glass

The initiation of a project by ASA on Methods of Test and Performance Requirements of Non-Shatterable Glass has been requested by the National Bureau of Casualty and Surety Underwriters. Many state motor vehicle commissions and highway departments are requiring the installation of non-shatterable glass in various classes of motor vehicles and the state of Massachusetts has developed a group of tests which non-shatterable glass used in cars registered in that state must be subjected to.

The request has been referred to the Safety Code Correlating Committee for recommendation to Standards Council.

Draft of Sanitation Code Available for Criticism

Copies of the tentative draft of the Industrial Sanitation Code now being considered by the sectional committee are available for criticism and comment. The code, which is being developed under the sponsorship of the U. S. Public Health Service, includes rules for industrial establishments, mines, and labor camps, on water supply, ventilation, housekeeping, waste disposal, inspection, toilet and washing facilities, retiring and dressing rooms, lunch rooms, etc. Copies of the draft code may be obtained from the American Standards Association.

Convert Fire Hose Couplings to American Standard

Rapid progress has been made in various sections of the country in converting existing non-standard fire hose couplings to the American Standard Fire Hose Coupling Screw Threads (B26-1925),[1] according to the National Fire Protection Association. The conversion has been completed in 84 cities and fire districts, the California State Department of Industrial Relations has reported. In the course of converting the threads to standard on 7,935 hydrants and 3,174 lengths of 2½ in. hose it was found that in some cases there were four different threads on the fire equipment of a single city. While the state law gave five years in which to complete standardization, it is believed that the work will be finished within 18 months of the passage of the law.

As many as six different threads were found on fire hose couplings in a single community in Montana before the standardization of fire hose couplings in that state was completed. The threads on these fire hose couplings varied from 2 13/16 in. in diameter to 3⅜ in. and from 5½ threads to the inch to 8½ threads to the inch.

The standardization of fire hose couplings has now been completed in Montana. The work was done under the direction of the Fire Marshal's office without any additional expense to the state. Immediately after the State Legislature passed the bill calling for the standardization of hose couplings, two sets of standardization tools were purchased and actual re-threading was started in August, 1929. One hundred and fifty-six cities and industrial plants had fire protection and the hose couplings in these places were all brought into uniformity through the application of the standard.

Emergency Lighting Code Requested by NEMA

The National Electrical Manufacturers Association has requested the ASA to initiate a project on emergency lighting. The NEMA points out that many state and municipal regulatory bodies have developed regulations requiring the installation of emergency lighting systems principally in places of public assembly and that the many conflicting requirements appearing in these regulations make it exceedingly difficult for manufacturers to develop a product which is acceptable to the various regulatory groups.

The request has been referred to the Safety Code Correlating Committee and the Electrical Standards Committee for joint recommendation to Standards Council.

[1] The American Society of Mechanical Engineers, the American Water Works Association, and the National Board of Fire Underwriters are sponsors for this project.

Specification for 600 Volt Trolley Construction

The proposed revision of the Specification for 600 Volt Direct Current Overhead Trolley Construction was recently circulated by the sponsor, the American Electric Railway Association. As a result of criticisms received the committee in charge of the specification has recommended further study, and it is believed that formal action on the revision by the ASA will probably be postponed for about a year.

Code for Lighting of School Buildings

The Illuminating Engineering Society and the American Institute of Architects as sponsors for the Code on Lighting of School Buildings have submitted a revised draft of this code for approval as American Standard. The code which was unanimously approved by the technical committee after about eighteen months' work has been referred to the Safety Code Correlating Committee for approval.

Submit Revision of Mechanical Refrigeration Code

The American Society of Refrigerating Engineers has submitted a revision of the Safety Code for Mechanical Refrigeration. The revision was made in order to bring within the code two new refrigerants which have come into use since the original code was approved. These refrigerants are methyl formate and dichlorodifluoromethane.

Gage Blank Standard for Sale

The recently approved American Standard for Plain and Thread Plug and Ring Gage Blanks (B47-1932) is now for sale by ASA at 15 cents per copy.

This is Commercial Standard number 8-30, which was originally developed by the American Gage Design Committee.